



(43) International Publication Date
12 May 2005 (12.05.2005)

PCT

(10) International Publication Number
WO 2005/041769 A1

(51) International Patent Classification⁷: A61B 5/083,
G01N 21/35

(21) International Application Number: PCT/JP2004/016451

(22) International Filing Date: 29 October 2004 (29.10.2004)

(25) Filing Language: English

(26) **Publication Language:** English

(30) Priority Data: 2003-373093 31 October 2003 (31.10.2003) JP

(71) Applicant (for all designated States except US): OT-SUKA PHARMACEUTICAL CO., LTD. [JP/JP]; 9, Kandatsukasa-cho 2-chome, Chiyoda-ku, Tokyo 1018535 (JP).

(72) Inventors; and

(75) **Inventors/Applicants (for US only):** MORI, Masaaki [JP/JP]; 20-18, Sugiyamate 1-chome, Hirakata-shi, Osaka 5730118 (JP). KUBO, Yasuhiro [JP/JP]; 2093-211, Bodaiji, Konan-shi, Shiga 5203242 (JP). ZASU, Yasushi

[JP/JP]; 7-1, Seikadai 3-chome, Seika-cho, Soraku-gun, Kyoto 6190238 (JP). TANI, Masayuki [JP/JP]; 61-22, Nagaonishimachi 2-chome, Hirakata-shi, Osaka 5730162 (JP). HAMAo, Tamotsu [JP/JP]; 162-22, Mukajimamatsuda-cho, Fushimi-ku, Kyoto-shi, Kyoto 6128154 (JP).

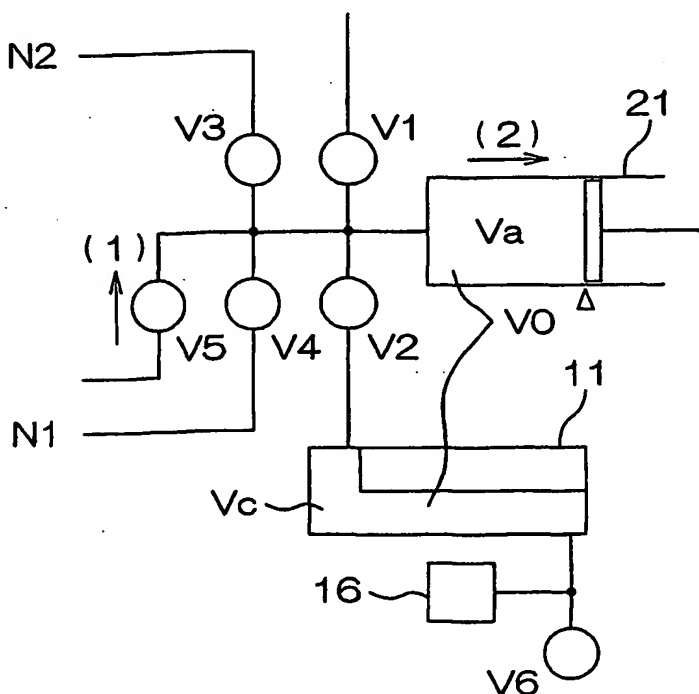
(74) Agents: **INAOKA, Kosaku et al.**; c/o AI Association of Patent and Trademark Attorneys, Sun Mullion NBF Tower, 21st Floor, 6-12, Minamihommachi 2-chome, Chuo-ku, Osaka-shi, Tokyo 5410054 (JP).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NL, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

[Continued on next page]

(54) Title: GAS INJECTION AMOUNT DETERMINING METHOD IN ISOTOPE GAS ANALYSIS, AND ISOTOPE GAS ANALYZING AND MEASURING METHOD AND APPARATUS



(57) Abstract: As previous processing of measurement in which gas to be measured containing, as gas components, carbon dioxide $^{13}\text{CO}_2$ and carbon dioxide $^{12}\text{CO}_2$, is introduced into a cell, and in which the intensities of transmitted lights having wavelengths suitable for measurement of the respective gas components, are measured and then data-processed to measure the concentrations of the gas components, the air having a predetermined volume V_a is sucked by a gas injection device 21, a gas exhaust valve V_6 of a cell 11 is closed and the air stored in the gas injection device 21 is transferred to the cell 11 filled with the air at an atmospheric pressure, thereby to pressurize the cell inside. The pressure thus pressurized is measured as P . The cell volume V_c is subtracted from the product obtained by multiplying the sum. V_O of the volume V_a and the cell volume V_c , by the ratio P_O/P in which P_O is the target pressure of the gas to be measured at which a calibration curve has been prepared for an isotope gas analysis and measurement, thus determining the one-time gas injection amount of the gas injection device 21. Thus, measured concentration variations based on changes in atmospheric pressure can be corrected.



ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— *with international search report*